

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☐ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.

pel



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/853,565	09/04/2001	Edward Sean Hoskins	STL9650/40046.114USU1	6329

7590 08/26/2004

DAVID K. LUCENTE
SEAGATE TECHNOLOGY LLC
INTELLECTUAL PROPERTY DEPT.-COL2LGL
389 DISC DRIVE
LONGMONT, CO 80503

EXAMINER

CHOI, WOO H

ART UNIT	PAPER NUMBER
----------	--------------

2186

DATE MAILED: 08/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/853,565

Applicant(s)

HOSKINS, EDWARD SEAN

Examiner

Woo H. Choi

Art Unit

2186

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/23/01.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 – 8, 11 – 13 and 16 – 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Dobbek *et al.* (US Patent No. 5,937,435, hereinafter “Dobbek 435”).

3. With respect to claims 1, 12, 13, and 20, Dobbek 435 discloses a method for translating a target logic block address (TLBA) value to a physical location value on a data storage disc of a disc drive, comprising steps of:

- a) finding a target physical block address (TPBA) value corresponding to the TLBA value (figure 9, col. 16, lines 12 – 15) ;
- b) determining a track offset value of the TPBA value from a start of a zone on the disc containing a TPBA corresponding to the TPBA value (figure 12, 1204 – 1210);
- c) computing a physical cylinder value and a head value from the track offset value (1212 – 1214);

Art Unit: 2186

- d) determining a total skew value (figure 5, 536) and a PBA (physical block address) offset (col. 17, lines 46 – 51) value of the TPBA value; and
- e) computing a physical sector value from the total skew value and the PBA offset value (col. 17, lines 46 – 51 and col. 14, line 62 – col. 15, line 3).

4. With respect to claim 2, the method further comprises steps of:

- f) finding a track start logical block address (TSLBA) value for the TLBA value (figure 9, col. 17, lines 6 – 9) ; and
- g) computing a logical sector value from the TSLBA value and the TLBA value (col. 17, lines 9 – 14).

5. With respect to claims 3 and 16, a defect list is maintained by the disc drive and the finding step a) comprises steps of:

- a)(i) finding a defect list (figure 9, 908, 910) entry that provides a number of slips up to a TLBA corresponding to the TLBA value; and
- a)(ii) adding the number of slips up to the TLBA to the TLBA value to find the TPBA value (col. 17, lines 33 – 46).

6. With respect to claims 4 and 17, the determining step b) comprises steps of:

- b)(i) calculating a zone start PBA (ZSPBA) value; and
- b)(ii) reducing the TPBA value by the ZSPBA value to find a number of PBAs from a ZSPBA corresponding to the ZSPBA value to the TPBA (figure 12, 1204 – 1208).

7. With respect to claims 5 and 18, the computing step c) comprises steps of:
 - c)(i) scaling the number of PBAs from the ZSPBA by a number of PBAs per track within a zone containing the TPBA; and
 - c)(ii) using an integer portion of a quotient determined in scaling step c)(i) as the track offset value (figure 12, 1210).
8. With respect to claims 6 and 19, the computing step c) further comprises steps of:
 - c)(iii) scaling the track offset value by a number of heads; and
 - c)(iv) using an integer portion of a quotient determined in scaling step c)(iii) as the physical cylinder value (figure 12, 1212).
9. With respect to claim 7, the computing step c) further comprises steps of:
 - c)(v) using a remainder of scaling step c)(iii) as the physical head value (figure 12, 1214).
10. With respect to claim 8, the determining step d) comprises a step d)(i) of using a remainder of scaling step c)(i) as the PBA offset (figure 12, 1208).
11. With respect to claim 11, the method further comprises a step h) of computing a logical end of the track (LEOT) containing the TLBA by finding a number of slips on the track and deducting the number of slips on the track from the number of PBAs on the track (col. 18, lines 12 – 21).

12. With respect to claim 12, the disc drive further comprises a memory containing a defect list (figure 9, 908, 910), and wherein the processor is further configured to find the TPBA by finding a defect list entry that provides a number of slips up to a TLBA corresponding to a TLBA value contained in the command and adding the number of slips up to the TLBA to the TLBA value to find the TPBA value (col. 17, lines 33 – 46).

13. With respect to claim 13, the processor is further configured to determine a total skew value by finding a first skew value including all skew up to a zone containing the TPBA, find a second skew value including all skew within the zone containing the TPBA, and modulo a sum of the first skew value and the second skew value by the number of PBAs per track to find the total skew value (col. 14, line 62 – col. 15, line 3, col. 12, line 10 – 12).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 9, 10, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dobbek 435 in view of Dobbek *et al.* (US Patent No. 5,890,209, hereinafter “Dobbek 209”).

Art Unit: 2186

16. With respect to claims 9 and 14, Dobbek 435 discloses all of the limitations of the parent claim as discussed above. However, Dobbek 435 does not specifically disclose the details of skew calculations. On the other hand, Dobbek 209 specifically disclose such details (Dobbek 209, col. 11, lines 11 – 30).

It would have been obvious to one of ordinary skill in the art, having the teachings of Dobbek before him at the time the invention was made, to use the skew calculation teachings of Dobbek 209 in the disk storage system of Dobbek 435, in order to decrease the track seek time overhead in disk drives and further eliminate the overall performance degradation associated with the track seek in no-ID disk drives (Dobbek 209, col. 3, lines 60 – 63)

17. With respect to claims 10 and 15, the processor is further configured to find the physical sector value by summing the total skew value and the PBA offset (Dobbek 435, col. 21 34 – 40, applying the skew conversion to the raw unskewed skip sector conversion has the net cumulative effect of a summation).

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nemezie et al. (US Patent No. 6,560,055), Hetzler et al (US Patent No. 5,523,903) and Dobbek (US Patent No. 5,890,209) disclose other methods of translating LBAs to PBAs.


Art Unit: 2186

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Woo H. Choi whose telephone number is (703) 305-3845. The examiner can normally be reached on M-F, 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim can be reached on (703) 305-3821. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

whc
August 4, 2004



MATTHEW KIM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER